The 'Facilitator': Proposing a New Mechanism to Strengthen the Equitable and Sustainable Use of Biodiversity

by

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INTRODUCTION

Recent Developments in the Sustainable Use of Biodiversity

Humankind has always used, and ultimately become widely dependent on, various aspects of biodiversity. For millennia the balance between humans and other biota was sustainable; for although there is evidence of some human-induced extinction in times long past, the impact of people on the environment had only rather limited irreversible effects. That, however, has changed in the 20th century as a result of a combination and interaction of industrialization, rising living standards and consumption impacts, and ever-increasing human populations. As a consequence, biodiversity began to be lost as our utilization of genetic and other resources was no longer sustainable, and species began to disappear at rates estimated to be up to 50 species per day (Myers, 1993).

Underlying the loss was the concept that biodiversity was 'the common heritage of Mankind'. Operationally this meant that these resources belonged to no-one in particular, and hence few in decision-making positions valued it. And what is not valued is not fostered. This unsustainable and irresponsible practice began to change in the latter part of this century in response to several key factors. The first of these was that, with losses mounting, biodiversity at last gained attention, as the pretence that it was unlimited could no longer be sustained; moreover through growing scarcity, value was implied. These concerns were reflected in the far-sighted United Nations Conference on Environment and Development, held in Rio de Janeiro in 1992 (UNCED, commonly called the 'Earth Summit'). At much the same time, biotechnology emerged as a reality, enhancing both the speed and range of product development and increasing the value of genetic resources by making genetic transfers possible. Modern biotechnologies enable us to tap biological resources in novel ways that give them additional value for humans.

It has long been recognized that a disproportionate amount (some say 70–80%) of the World's biodiversity is in the South; yet it is the private sector in the North that invests more than US$ 9 thousand millions per year in biotechnology R&D — almost double the GNP of Costa Rica (Authors' compilation). Hence the basis for North to South exchange has been strengthened as a result of advances in biotechnology. The South supplies the materials for applications in the North. South–South exchanges will be possible in the more distant future, but investments in excess of US$ 200 millions over a ten–years' period for the development of a single successful pharmaceutical product seem likely to limit the number of developing countries which can become benefiting partners at this time.

This process of seeking genetical resources and solutions is known as bioprospecting, recognizing that biopesticides and environmental applications, among others, are the targets — along with pharmaceuticals. An event which occurred in 1991 focused attention on this form of use of biodiversity, namely the agreement between Merck & Co. Inc. and the National Biodiversity Institute of Costa Rica (INBio) for the payment of collection fees and a subsequent royalty on any commercial products in exchange for the opportunity to screen samples from Costa Rica. The search for new compounds based on natural products has led many pharmaceutical companies to enter into alliances or limited partnerships with major research institutions (Reid *et al.*, 1993).

In recognition of this renewed interest in genetic resources, the Convention on Biological Diversity (hereafter called the Convention) was drafted and signed at the Earth Summit, stipulating that *it is the right of sovereign governments to regulate access to their genetic resources* (Articles 15.1 and 3). This means that more and more nations are now enacting laws whereby companies need to enter into agreements in order to have access to such genetic resources. This may be in the form of contracts or of material transfer agreements that stipulate (equitable) benefit-sharing arrangements.

Equity Issues About Marketing Biodiversity

It should be emphasized that equity is important both for moral reasons and for the need to share benefits as a means of encouraging conservation, *e.g.* in Nature reserves. However, equity is 'in the eyes of the beholder'; different individuals with the best of intentions can reasonably come to very different conclusions about the selfsame matter. Part of this honest diversity is related to the kind of

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use undergone, and part to cultural values. These matters cannot easily be resolved, at least in the short run. However, there is one impartial valuing mechanism for biodiversity, namely the market mechanism (assuming that it works properly, and without prejudice or penalty to certain groups).

Of course, the market is limited in what it measures; but it does provide a starting-point and it surely serves as a source of much-needed funds for national and local use. Hence an approach to equity is making the market for the sustainable uses of biodiversity work properly, with due sharing of returns according to the real contribution to the final use-value. The facilitating mechanism proposed here — the 'Facilitator' for short — is directed to improving the market operations so as to reflect better than otherwise the legitimate contributions of genetic resources and value-added activities by the original, source countries.

The benefits to be derived from bioprospecting are relatively limited and much below general expectations. Enhancing the parity — and hence the potential benefits — is one rationale for creating the Facilitator in a phased manner; *i.e.* initiate bioprospecting activities before broadening the scope into other 'biodiversity use' areas such as the development of various types of natural products.

A related matter is the knowledge of local and indigenous peoples, which is often so important in identifying materials with potential uses in medicine, agriculture, and other areas. Because control over knowledge is lost when once it is shared, these groups in the past have received little or no monetary benefit for their traditional knowledge. Yet, viewed impartially, that knowledge does have real value (*e.g.* in terms of the reduced searching needed to find a product of value). Indeed a new pharmaceutical company, Shaman Pharmaceutical, was established recently expressly to use traditional knowledge as an initial 'screening' process in identifying plants with possible medicinal properties. The Facilitator can also assist in the determination of the value of that knowledge for groups which choose to share it (*see also* Burnand, 1994).

It should be stressed here that biodiversity is not only of significant monetary value to the biodiversity-rich but otherwise poor or 'developing' countries. Indeed, developing countries have derived and are deriving great benefits from their flora and fauna, while even some of the least-developed countries are at last beginning to realize such potentials. The traditional peoples of these often biodiversity-rich countries are sometimes substantially dependent on the continued viability of their biodiversity resources for their economic, social, and cultural, well-being. In no way is it suggested, however, here that a dollar from the North has more intrinsic worth than the non-monetary wealth generated within developing countries from the use of their biodiversity.

Some Problems with the Development of an Equitable Market Mechanism

At the moment, countries aspiring to market their genetic resources, as well as firms seeking access to these rnaterials, are uncertain as to how to proceed under the new expectations brought about to a large extent by the Convention. The large number of requests for assistance received by INBio is indicative of this factor, namely the complexities of such agreements, particularly from the perspective of sellers (*see also* Lesser & Krattiger, 1994*a*).

Despite these problems, large firms will soon have found all the tropical-country partners they can accommodate. Attention must then move to the large number of smaller firms in the North as well as in the South. Making arrangements for these smaller firms will entail a series of additional steps: prospects must be identified as part of a marketing effort; intellectual property rights (IPRs) must be extended and reinterpreted to meet the combined new needs of the technology and the position of the marketer, now a developing country; and means must be found to instigate and reapportion risks that are implicit in new ventures among sellers, buyers, and specialized intermediaries.

Unfortunately, genetic prospecting is often presented as something new. This is not strictly correct, but the considerable interest in it is recent. The excitement stemming from prospecting revenues is having an unfortunate side-effect in emphasizing the perceived newness of this opportunity. Newness implies uncertainty, which attracts risk-takers. This is an important issue with biodiversity prospecting, because the continued emphasis on newness will tend to discourage participation until a less risky standard practice emerges. The purpose of proposing a Facilitator is to contribute to, and hasten, the emergence of that standard practice, and maintain its stability when established.

Technology transfer can be defined as the geographic movement of productive capacity. Genetic material, too, is a basis for technology, for it is the means of developing a range of new products; it is, indeed, productive capacity in an unrefined form. But its sale involves technology transfer with significant differences, the major ones being the transfer in predominately South–North and secondarily South–South as opposed to the familiar North–South movement; and the materials are natural products which create technical and institutional complexities (*see* Lesser, 1994). Before the transfer of genetic technology can be made routine, the consequences of these differences must be identified and a procedure established for testing and practising transfer mechanisms.

Transferring technology to smaller firms in the North will require a more substantial effort than the above. A clearing-house is needed for the identification of sellers and buyers — the most basic function of a broker. Additionally, participants will require information on exchange terms, so that sellers are assured of equitable terms and buyers are helped to avoid expenses which would render them non-competitive.

An exchange for general price information not associated with any specific transactions is a common role of a trade association. In this case, a not-for-profit entity must initially take on the task while the market/industry develops. Moreover, contract terms are more complex than simple prices, so that information on other terms of trade components and training must be provided as well.

The Proposed 'Facilitating' Mechanism

In recognition of the problems related to technology transfer discussed above, and of the likely benefits of voluntarily sharing expertise on a regional basis, a 'Facilitator' mechanism was proposed (Lesser & Krattiger, 1994*b*) and

first presented at the *Global Biodiversity Forum*, held at IUCN Headquarters, Gland, Switzerland, prior to the October 1993 meeting of the *Intergovernmental Committee on the Convention on Biological Diversity*. The proposed approach is developed as a complement to the existing organization ISAAA, the International Service for the Acquisition of Agri-biotech Applications (Krattiger & James, 1994), a recent entity aimed at transferring proprietary agricultural biotechnology applications from industrialized to developing countries for the latters' benefit.

Purpose and Scope

The purpose of the Facilitator is to enable, on a voluntary-use basis, equitable and sustainable deals to be made between sources and users of genetic resources, and in doing so to promote cooperation in the transfer of technological, human, and information, resources and skills to countries in the region. This should be accomplished by providing information and training that are directed at making the market work more efficiently than otherwise, and at rendering the negotiators more nearly equal in skills.

Biodiversity prospecting would be the initial, primary focus of facilitation activities but would include, as the mechanism evolves, the development of a variety of biodiversity-derived products. Bioprospecting is understood to encompass actual commercial deals and the development of technological capacity in source-countries, in harmony with national policy and the aspirations of local communities and indigenous peoples.

Mandate and Functions

In a general sense, the Facilitator would function as an active and honest broker and conduit for information relevant to biodiversity prospecting and related legal, institutional, scientific, conservation, and business, aspects as follows:

Providing 'Honest Broker' Services Linking Sellers and Buyers and Underwriting Initial Agreements by:

- Assisting genetic technology-providing countries in assessing needs and opportunities in germ-plasm marketing;
- Helping national and international agencies to identify and execute arrangements for the sustainable use of genetic resources;
- Supporting these agencies in recognizing the implications of sale conditions, including the provision of price and other prevailing terms of trade information; and
- Raising the necessary funds to underwrite the initial brokered agreements.

The underwriting of initial agreements reduces the perceived risk and therefore the worry of market entry. The 'honest broker' service presumes that the Facilitator has a comprehensive database of relevant information about genetic technology providers (availability of genetic technology, level of pre-screening, level of classification and size of potential collections) and potential users (interest of firms, universities, and institutes).

Identifying Agreements Which will Provide for the Necessary Technical Training of National Marketing Specialists, Scientists, and Policymakers by:

- Providing training in technology marketing and contract negotiation for public agencies, NGOs, and the private sector;
- Encouraging the genetic technology-user to share in-house knowledge and experience with the genetic technology-providing entity under the brokered agreements;
- Identifying opportunities and making arrangements for technical and scientific training in prospecting and screening activities; and
- Supporting the provision of access to necessary equipment for these activities.

Assisting Governments, on Request, in the Identification and Implementation of Legislation Suited to the Country's Role as Technology Seller by:

- Facilitating the establishment of an independent panel of experts to provide advice upon request*;
- Arranging for relevant meetings to discuss interpretations and extensions of IPRs for genetic technology and their resulting economic and social implications; and
- Developing specific workshops to share information as well as targeted training programmes and internships.

Institutional and Funding Requirements

It is evident that the Facilitator, to meet the objectives, must be an independent 'honest broker' entity with no vested interests in brokered arrangements, and that it must operate at the cross-roads of genetic technology providers and users, development agencies, and information. Hence, a number of facilitating mechanisms are being explored which include: a new non-profit institution; an intergovernmental regional body; an existing regional or international institution that could be strengthened to undertake the special tasks involved; and a regional expression (node) of the Convention's clearing-house mechanism.

The form that the Facilitator would take will influence its source of funding. If the institutional mechanism is going to be successful in the long term, then high-quality, costly deals will have to be made without which the mechanism would not be sustainable. This means that, at least initially, the Facilitator would need to build up its capacity in one narrow area. Different funding options and their implications are now being considered during the feasibility study (*see* below).

The Process to Establish New Mechanism

In order to test the idea of a Facilitator, the International Academy of the Environment organized a roundtable meeting from 7–9 April 1994 in Cuernavaca, Mexico, initially focusing on Latin America and the Caribbean (IAE, 1994; Krattiger, in prep.). Twenty-three individuals, including representatives from government, the Convention, indigenous people's organizations, the private sector, academia, and NGOs, participated and further refined the concept. Despite the diversity of participants, there was general agreement that such a Facilitator is needed; but the participants recognized that there is also a need to sample the opinions of a broader constituency. Hence, they requested the Academy to conduct a feasibility

*For these and the other established specialists involved there should be an agreed scale of recompense of at least the order of magnitude of the fees invariably charged by medical specialists and legal experts. — Ed.

study in Latin America and the Caribbean, which is now under way with financial support from UNEP.

In addition, the Stockholm Environment Institute (SEI) organized, in collaboration with the Academy, two further roundtables — in September 1994 in Africa (SEI/IAE, 1994*a*) and in October 1994 in Asia (SEI/IAE, 1994*b*) — to discuss on a regional basis and consult about several issues under the Convention, including the Facilitator. In Asia, particularly, the concept received unexpectedly high attention, and the participants concluded that 'the Facilitator should be seen as one of a number of potential institutions which may be helpful in promoting technology cooperation and transfer related to sustainable use of genetic resources in the Asian region. The fact that a clearing-house mechanism is likely to be set up [under the Convention] should in no way preempt or preclude regional efforts to establish and experiment with a multiplicity of facilitating mechanisms and institutions' (SEI/IAE, 1994*b*).

The wide consultations under the feasibility study, as well as those of the African and Asian roundtables, will form the basis for a decision on how to proceed. The Informal Consultation on A Clearing House to Promote and Facilitate Technical and Scientific Cooperation under the UN Convention on Biological Diversity, which was organized by SEI and the Academy on behalf of the Governments of Sweden and the Bahamas (SEI, 1994), is also a part of this wide consultation. All responses will be incorporated in the final document to be completed in late 1995.

It should be noted here that the feasibility study considers several options for institutional developments of the Facilitator. Although the Academy coined the concept and developed it, another regional institutional mechanism — either new or existing — is needed to implement the Facilitator.

Beyond the feasibility study, the following strategy is being contemplated, which comprises several activities to be performed simultaneously including:

- Developing a limited number of case-study projects in selected countries around which to structure the initial brokering and training activities;
- Raising the necessary funds, initially to establish pilot projects, and later to carry out the regular activities and to underwrite brokered deals;
- Establishing the services initially on a pilot-project basis; and
- Reviewing progress within a determined time-frame (2–3 years), in consultation with collaborating institutions and, based on the experience gained, determining how the services should be adapted to respond to the expected needs and priorities.

Relationship with the Convention on Biological Diversity

The Facilitator, as described here, could play an important role in, and go a long way towards, determining and implementing what Article 1 of the Convention means in practice as opposed to a philosophical contribution (*i.e.* 'the fair and equitable sharing of the benefits arising out of the utilization of genetic resources'). Fairness and equity have several components (recognition, control, and remuneration) and are culture-based in their interpretation. Remuneration, for example, for indigenous contributions needs to be quite elaborate and for the time being can best be solved through contracts. Contracts are difficult to draft if they are to protect the interests of the resources-selling country. Additionally, specific information is required on exchange terms, so that these countries are assured of terms that are 'equitable' — meaning terms that represent a 'fair' share of their real contributions. It is in this context that a voluntary facilitating mechanism would contribute much in raising the stakes in these deals; in adding a certain comfort-level that will increase participation; and in sharing information and building expertise that developing countries would not otherwise have access to.

More specifically, the Facilitator responds to several explicit objectives of the Convention, namely the:

- Strengthening of cooperation between government and the private sector (Article 10[e]);
- Recognition and direct involvement of local traditional societies (Article 10[c]);
- Establishment of more standard practices for access to genetic resources than currently exist (Articles 15.2, 15.5, and 15.7);
- Facilitation of biotechnology transfer, and other technologies, for the sustainable use of biodiversity (Articles 16.1, 16.4, 19.1, and 19.2);
- Provision of information, on a confidential basis where necessary, particularly to developing countries (Article 17); and finally,
- Contribution to scientific and technological cooperation (Article 18).

The last point relates to the clearing-house to be established under the Convention. Based on the first Conference of the Parties of the Convention, that took place in late 1994 in the Bahamas, it is likely that this will include, at least in the longer term, a number of the functions that the Facilitator proposed here might have. In any case, the Facilitator would be one of a number of potential institutions which promote technology cooperation and transfer related to equitable and sustainable use of genetic resources.

The fact that the setting up of a clearing-house mechanism is proposed should not preclude regional efforts. As and when the clearing-house is developed as an effective institution under the Convention, it is likely that other facilitating mechanisms will have been developed that would ally themselves with the clearing-house.

Expected Benefits from Such a Facilitator

The proposed Facilitator is intended to enhance an existing and ongoing process — the sustainable use and commercialization of germ-plasm. By hastening a standard practice of exchanging this material, people will benefit from earlier access than formerly to new products, including medicines. Germ-plasm providers will receive funds for what was previously given free-of-charge, which should indirectly provide an incentive for conservation. Other tangible benefits are the provision of training services for technology marketing and contract negotiation, and arrangements for scientific and technical training complementing similar initiatives (*e.g.* the IOCDs [Weiss, 1994]; Biotics [Thomas *et al.*, 1994]). More pro-actively, the Facilitator implements several exchanges, fostering the exchange process in a secure, risk-free environment.

Intangible benefits from such a Facilitator could include an instillation of trust between the providers and users — the sellers and buyers — whether they are in the North or the South. Trust in this case would be based on several factors. These are principally the experience of having completed mutually-beneficial arrangements, and the confidence to negotiate based on that knowledge and experience. Until such a level of trust is achieved, the exchange process would remain a sporadic and uncertain one whereas what is needed is an internationally accepted system. There are short-term profits to be made from special arrangements, but the real benefits for conservation resulting from such deals would come from the proper channelling of the accrued benefits to conservation and to communities that would thus benefit from biodiversity.

It is really to the facilitation of that sustainable use, and to the equitable sharing of the benefits derived from such use, that the Facilitator is directed.

Summary

The focus of the Convention on Biological Diversity on conservation, the sustainable use of the greatest possible diversity of biota, and the equitable sharing of the benefits derived therefrom, has broadened the opportunities and responsibilities of a range of entities that are involved with conservation. Countries seeking to market their genetic resources, as well as firms seeking access to these materials, are uncertain as to how to proceed under the new expectations brought about by the Convention, and the excitement stemming from prospecting revenues is having an unfortunate side-effect in emphasizing the perceived newness of this opportunity. The continued emphasis on newness discourages participation until a less risky standard practice emerges.

In recognition of these problems, we propose a 'Facilitating Mechanism' to contribute to the emergence of that standard practice, on the basis of voluntarily sharing expertise on a regional basis. The Facilitator would function as an 'honest broker' and conduit for information, initially relevant to bioprospecting and related legal, institutional, scientific, conservation, and business, aspects by:

- Providing 'honest broker' services linking sellers and buyers and underwriting initial agreements;
- Identifying agreements which will provide for the necessary technical training of national marketing specialists, scientists, and policymakers; and
- Assisting governments, on request, in the identification and implementation of legislation that would be suited to the role of the country concerned as technology seller.

The potential benefits of such a facilitating mechanism are multiple and include enhancing the ongoing process of sustainable commercialization of germ-plasm, which would provide an incentive for conservation of Nature reserves, etc.; promoting cooperation in the transfer of technological, human, and information resources and skills; making the market work more efficiently and with the negotiators being more equal in skills; and contributing pragmatically towards the resolution of complex areas and problems emerging from the Convention (*e.g.* Articles 10, 16, 18.3, and 19.2).

Several roundtables have been held in Latin America, Africa, and Asia, to test the mode of our proposal, and a feasibility study is under way in Latin America to determine the most desirable form which the Facilitator should take, the need for selected programme, the prioritization of the functions and specific objectives of the Facilitator and strategies for their implementation, the structure, staffing, and location options, the possible status and governance, the possible affiliation of the Facilitator bearing in mind that it must be neutral and impartial in order to be effective and credible, the cost-estimates for implementation, and funding options.

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